

Perspectives in Fluid Dynamics: A Collective Introduction to Current Research, edited by G. K. Batchelor, H. K. Moffatt, and M. G. Worster. Cambridge University Press, New York, 631 pp.

REVIEWED BY THOMAS R. OSBORN¹

This volume strives to counter the trend towards specialized texts in advanced fluid mechanics and to showcase the breadth of topics for research in fluid mechanics with a selection of 11 different topics. The articles are designed to provide an introduction to the topics assuming a general knowledge of fluid mechanics but not expertise on the specific subject. The titles give a good idea of the subjects covered and the clear progression from small scales to large scales.

- Interfacial Fluid Dynamics—S. H. Davis
- Viscous Fingering as an Archetype for Growth Patterns—Y. Couder
- Blood Flow in Arteries and Veins—T. J. Pedley
- Open Shear Flow Instabilities—P. Huerre
- Turbulence—J. Jiménez
- Convection in the Environment—P. F. Linden
- Reflections on Magnetohydrodynamics—H. K. Moffatt
- Solidification of Fluids—M. G. Worster
- Geological Fluid Mechanics—H. H. Huppert
- The Dynamic Ocean—C. Garrett
- On Global-Scale Atmospheric Circulation—M. E. McIntyre

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Each of these topics already fills many books. To distill into the 50 pages of each chapter a coherent introduction of the subject is very hard work. Nevertheless, the appeal of having the range of subjects in one volume is irresistible.

What a challenge to the reader! You can start by reading a review in your own field (e.g., oceanography) and perusing the related fields (turbulence, atmospheric circulation, shear flow, and convection). But then you are drawn to the chapter on blood flow—a pulsating flow in flexible tubes. The interfacial regime is of interest for bubbles, droplets, and lubrication. That chapter draws one on to the viscous fingering and growth patterns. The spectacular color plates of solidification and geological phenomena catch one's eye and draw you to the text. It is the hot fluid in the center of the earth that enables the terrestrial magnetic field via magnetohydrodynamics. It is a book one uses like a supermarket—something from here, something else from there, you can't take it all at once—yet the open shelves lead one to look at new items and ideas.

The breadth and variety of topics and techniques make this a useful book for teaching an advanced course. The book displays the tremendous range of practical problems, environmental phenomena, industrial applications as well as research topics that involve fluid mechanics. This paperback version of the book is handsomely prepared with Jupiter's red spot on the cover, nice quality printing and a pleasant layout for reading.

This book was conceived by Professor Batchelor as a sequel to his *Introduction to Fluid Mechanics* and is dedicated to his memory by H. K. Moffatt and M. G. Worster. It is a very fitting tribute.